ELECTRICITY on the FARM

AUGUST, 1940

THE NATIONAL MAGAZINE OF RURAL ELECTRIFICATION

What's It?

Each of the numbered illustrations is a piece or part of a piece of electrical equipment used in the home. Write down on a slip of paper just what you think each is and what it is used for. Then turn to page 22 and see if you are right.

Editor's Chat

HORSE SENSE

I don't know what horse sense is. I'm not a horse.

But I guess I have as much right to speculate on what horse sense is as anyone; and I have a page to do it on.

Did you ever try to ride a horse over a twisted up barbed wire after he had once had his leg cut? He won't go. Maybe that's horse sense. Some of that kind would be good to use in town, too. A friend of mine bought some Barbed Wire stock a few years ago at $33 a share. A year later he walked up to the edge of the Stock Market one day, and there in front of him was that twisted Barbed Wire quoted at $19. Did he stay out? No. He got tangled up again. Now it's $9.

In the spring, horses love to get out in the pasture and munch away on the tender green grass. Nobody tells them to. They have no book of recipes. But their coats get sleek and their bodies strong. If the pasture is shared with the cow, she starts giving more milk and richer milk without any adjustment of the valves or installation of a by-products plant. And those Kentucky race horses that get carrots. The carrots are not cooked and **not even peeled**; yet those colts eat them, and they get full of carotene and high-steperinctum. Now **we** couldn't eat grass. That isn't good human sense. We let the grass grow up to wheat. Then we throw the grass away; we peel the bran off the wheat and we pry out the germ and give that stuff to the horses. But we have a nice white looking powder left. We've got sense? We put the good mineral bearing skin of the carrot in the slop for the hogs; then we boil what's left in a lot of water until most of the remaining minerals and vitamins get in the water, and we throw away the water. Then we eat. And we go to the doctor to find what's wrong with us. And the dentist patches up our lazy teeth that have not had to do any hard chewing. And we buy vitamin pills at $3 per 100. And we take calcium salts and iron salts and just salts. Then the SCIENTISTS make a WONDERFUL DISCOVERY. Twelve pounds of grass contains all the vitamins a human would need for a whole year, except vitamin D which he would get from the sun while eating the grass. SCIENCE? Just **horse-sense.**

When I was a kid, I ate liver. The butcher threw it in with the spare ribs. Then liver developed vitamins, and I didn't eat it any more. Only the rich folks ate it. Now cod-liver oil, egg yolk, fruits and vegetables have developed vitamins, and I eat liver again.

When horses roamed wild and we had prairie grass and swamps, and beavers and trees, the soil was fertile, the streams reasonably clear and harbors unfilled. Then **we** came. We cut the trees, we made ladies' coats of the beavers, we plowed up the grass, the rains fell and the winds blew. Now our soil is in the gulf, the Okies are in California and our scientists are finding that trees, and beavers to cut them and dam the little streams, and grass to hold the soil from the wind are good things. We are trying to restore them or provide some "corn flakes" substitutes for them.

Yesterday I read a little book on intensive advertising. It was condensed from a big book on the same subject written twenty-six years ago by John E. Kennedy. Mr. Kennedy was paid $25,000 to write the book. He was not an advertising man. He was a Northwest mounted policeman. He rode a horse. He had time in lonely places to commune with his horse and talk to him. His book said: Advertising is salesmanship in print. First you must have something good to sell. You must believe in it. You don't need to "doll it up" and make over-extravagant statements about it in gaudy type. Tell the truth about it that your prospective buyer would like to know. $25,000. Just horse sense.

First, there's the horse. Then us—with lofty opinions, grandiose ideas, much blundering around. Then the scientist discovers. When we have gone around the circle, exhausted all the possibilities of trial and error, we once more draw up by the horse with our feet on the ground. Horse Sense!

(The horse is a **farm** animal.)

Doesn't the countryside look grand this summer? **I'm proud I am a farmer!** Wouldn't a Frenchman or a Belgian or a German thrill to be here. Plenty to eat; peaceful sleep. **It's great to be an American!**

Clarence Cable

August, 1940 ELECTRICITY ON THE FARM Vol. 13, No. 8

The National Magazine of Rural Electrification

CASE-SHEPPERD-MANN PUBLISHING CORP.

Editorial-Executive Offices: 24 West 40th Street, New York, U. S. A.

GEORGE W. KABLE, *Editor;* KARL M. MANN, *President;* FRED SHEPPERD, *Editorial Director;* I. H. CASE, *Vice-Pres. and Gen'l Mgr.;* K. H. GORHAM, *Advertising Manager;* H. S. ESSEX, *Production Manager.* CHICAGO: 6 No. Michigan Ave.—W. S. CLEVENGER, *Western Manager;* L. M. ROCHE, *Western Representative.* SAN FRANCISCO: 444 Market St., Room 305—C. H. WOOLLEY. Subscription price: 75 cents per year; single copies, 10 cents. Special bulk rates on application. *Contents Copyrighted* 1940 *by Case-Shepperd-Mann Pub. Corp.*

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WILL LIGHTS CONTROL MOTHS?

A New Light Trap Developed in the Orchards of the Northwest. A Summary of Results with Light Traps Over the United States

By CAMPBELL DAVIS

"TOO bad about Elmer Kinyon," neighbors of that central Washington fruit grower were saying last spring. "Seems like he's gone kinda crazy on catchin' his codling moths with a new-fangled light trap instedda spraying 'em."

Just how radical Kinyon's idea seemed to fruit men can only be realized when one knows what a terrific struggle is being waged against the codling moth with poison sprays, and that even with all of this spraying, the moth seems to be getting the better of the battle.

After a summer's trial it appears that the Kinyon's light trap seems to hold some promise of controlling the pest.

The trap used on the Kinyon farm is a recent invention of Prof. F. K. Kirsten, head of the aeronautics department of the University of Washington. It consists of high intensity tube lights, one violet and one red, mounted over a large funnel and collecting jar. The intense red neon tube, visible for many miles, serves to attract the moth, and a second tube mounted directly below and emitting a strong violet light together with some ultra-violet, serves to hold the moth and kill it after a few seconds of exposure to its ray.

Elmer Kinyon examines a catch of moths from the light trap.

At a meeting last February of the state horticultural society, Dr. Kirsten had this to say about the new lamp: "Red rays are the longest in the visible light spectrum, and the combination of red and blue light from the high intensity tubing seems to attract moths from an incredible distance due to its extreme visibility. Moths circling about the neon tubing exist for a matter of seconds before the short wave visible violet rays have a killing effect. They fall through the funnel and into the collecting jar from which accurate counts can be made." In the Kinyon orchard more than 450 moths were destroyed by a single unit in one night. Entomologists reported that the female moths caught in that test had not deposited their eggs.

Mr. C. O. Bunnell, Rural Service Supervisor of the Pacific Power & Light Company, who cooperated in the 1939 experiment, had several comments to make. "The Kirsten lamp is apparently a radical and efficient departure from other light traps which have been tried in different sections of the United States. It uses only about 200 watts of electricity which should make an average power cost of about $5 per unit for the season at a 3c rate. The lights have done a seemingly wonderful job, but are definitely still in the experimental stage. I feel that the lamps may at least provide sufficient control to justify a reduction of the spraying and fruit washing program to a point which will permit the growers a safe margin of profit. Eleven of these lamps, greatly improved over 1939, have been installed in a 33-acre orchard in the Wenatchee district, where careful records are being kept during the 1940 season."

Left: Dr. F. K. Kirsten of the University of Washington, who developed the new lamp.

Below: The Kirsten trap with red and blue-violet tube lamps. The funnel collects the moths, which then drop down into the glass jar.

Investigators are interested. "We are undertaking a rather extensive program in light trap study this summer," says W. A. Junnila, investigator connected with Washington State College. "The apple growers are very much enthused about the light proposition, mainly because the spray program has reached a point where they feel that they are unable to comply with it due to the cost."

$125 Per Year for Spraying

The average fruit rancher in Yakima county foots a bill of $125 per acre for spraying and washing his apples each year. And unfortunately, he still gets wormy apples. If the light trap is successful in controlling the pest, the first effect will be to greatly reduce the cost. Another advantage will be better keeping qualities, since apples and pears will no longer have to be handled several times in the harsh process of removing spray residue.

"Being an ultra-conservative experimenter, I have refused to sell any of my units to unqualified experimenters for the season of 1940," said Dr. Kirsten in early April, "but am now installing some eighteen traps in different orchards where qualified horticulturists and entomolgists will observe action from day to day."

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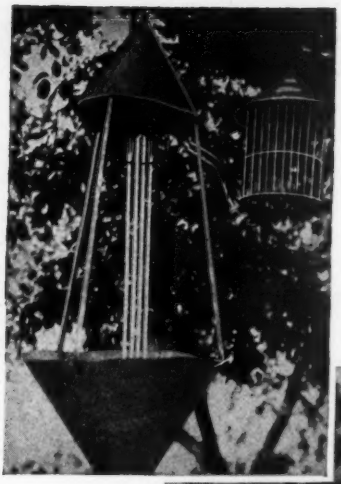
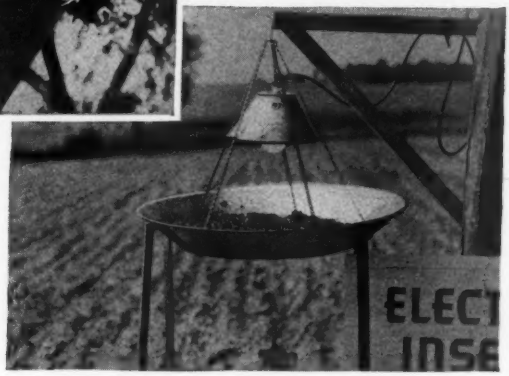
EDITOR'S NOTE. Since the above article was received, we have been in touch with investigators in many sections of the country in an effort



Left: A 5,000-volt, 15 mili-ampere, neon-argon-mercury tube trap used experimentally by Prof. H. Beresford of the University of Idaho. In rear, regulation electrocutor trap with Mazda lamp inside the "cage."

Below: A light trap in the garden on the R. N. Moose Farm in Western Pennsylvania. A 60 watt lamp in the reflector and water with a little oil on the surface in the pan. The "bugs" are May beetles, mosquitoes, and moths—hundreds of them—caught in one night.



to get the latest word on light trap investigaitons in progress.

In some of the best known fruit growing sections of the country, it is becoming a question of whether the moths or the growers will win out. Some orchards are being pulled out. In addition to the many poison sprays necessary for control, thorough washing of the fruit to remove arsenic and lead residues is necessary to meet Government prescribed tolerances for both domestic and export fruit. There is also a possibility of a toxic accumulation of poisons in the soil from too much spraying. Worst of all, perhaps, is the apparent development of immunity to poison on the part of the moths, either through the survival of resistant strains or the development of a tolerance for it.

There are several kinds of electric traps. (1) Electrocutor traps with lights or bait for attracting the moths. These may be of the bird-cage shape or flat screen panels. (2) Attraction lights with oil-pans below for killing the moths. (3) Attraction lights with collection cages. Lights of many different colors and types have been tried.

Light traps have been effective in truck gardens, especially for controlling tomato worms. In California , good results have been obtained with special electrocutor traps on grape-leaf hoppers, a small sucking insect which is very difficult to eradicate. Early codling moth lighting work in California attempted control by preventing egg laying by lighting the orchard at dusk (moths deposit their eggs at twilight). Prof. Herms of the California Experiment Station says: "At present we have a 14 acre pear orchard equipped with twelve 250 watt mercury lamp traps (cost $32.50) in a long term investigation of light trapping on the codling moth population. The use of light traps has a very definite place in pest control, but growers should not permit their hopes to rise too suddenly. There is much experimental work still to be done, both in the laboratory and in the field."

The Geneva experiment station in New York found lights partially effective in trapping moths in early experimental work. Purdue University in Indiana has been experimenting since 1928. "Studies made before the close of 1937 led to conclusions that the radiation most attractive to the codling moth involved a large luminous area, high intrinsic brilliance, and should consist of considerable blue, violet and near ultra-violet radiation." In 1939 traps used without spraying, using H-4 attraction lamps, gave 74.16 per cent. clean fruit, with check areas producing only 42.29 per cent. worm-free apples. The relative rate of catch for different types of traps was: electrocutor 6.2; electrocutor with bait 7.3; light with oil pan 9.1. Purdue has also made a study of the control of corn borers with light traps.

FARM WEEK
New York World's Fair
August 12 to 18

August 12 to 18 will be given over as a special farm week at the New York World's Fair. It is reported that this event will be the most elaborate undertaken in behalf of any group by the Fair. In addition to the regular attractions there will be contests and exhibitions arranged especially for farm people. There will be many "open house celebrations and hundreds of special free events."

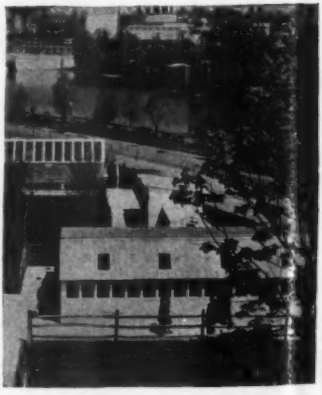
Rooms in private homes near the Fair grounds will be made available at $1 per person per night. There will be free out-of-door parking for cars. For full information about these accommodations write the Mayor's Official World's Fair Rooming Bureau, Chanin Building, New York City.

There are many eating places on the Fair Grounds, and the 1940 prices are reasonable. There are dozens of 10c hamburger and hot dog stands all over the grounds, milk for children at 5c, and restaurants serving meals at prices from 35c up to $5. All are clean and under inspection.

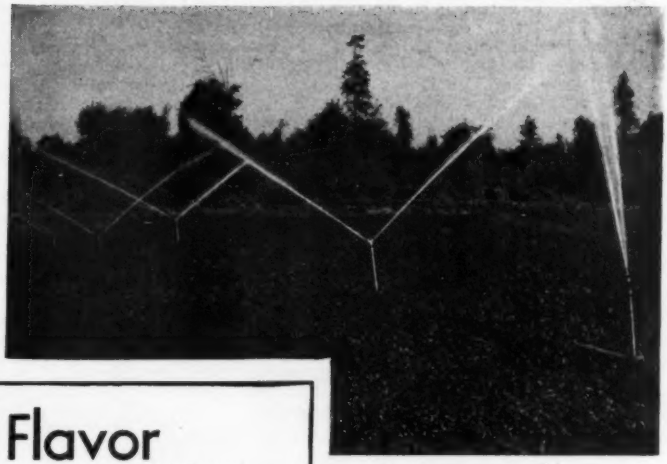
Children 4 to 14 years of age may be parked for a dime at a World's Fair playground while parents go sightseeing.

Railroads and bus companies have promised special low round trip rates for those who do not drive. Farm Week ticket books will be issued by

(*More on page* 12)



Hen House on Electrified Farm



A mint field being irrigated with efficient rotating sprinklers. The sprinklers wet circles up to 90 ft. in diameter. Lateral pipes are moved when one area has been sprinkled.

Candy Flavor from Watered Fields

By BEN MAXWELL

OREGON mint that contributes no small share in flavoring the peppermint candy consumed by the nation is a specialized crop that eagerly responds to abundant irrigation. Dave E. Turnidge, who grows 100 acres of peppermint on Route One near Jefferson, has had 26 years of experience in mint production and finds that electrical pumping is the most economical and efficient method of mint irrigation.

When this grower started with mint in 1914, irrigation was regarded as a new fangled notion not justified by local traditions. Later Dave adopted irrigation methods and tried gasoline engines for pumping. He found them inefficient because of constant attention required to keep the engine in steady operating condition.

Dave is now using rotating sprinklers operating at a head pressure of 35 pounds. Pressure is supplied by five centrifugal, shallow-well pumps with a total capacity of 700 gallons per minute and operated by five, three phase, 220 volt motors with a total of 25 horsepower.

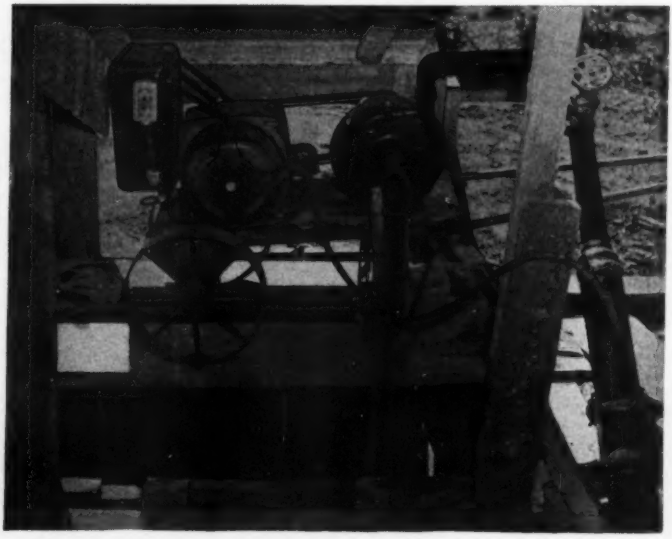
Irrigation continues over a full 24-hour period without interruption except for time required to move sprinklers and lateral distribution pipes at the end of each 12-hour interval. During 24 hours of irrigation, six acres of mint receive a thorough drenching to a depth of from four to six inches.

Twenty-four sprinkler heads distributed over each acre are supplied from 5½ and 4-inch mains and 3 and 2-inch laterals. Because the mains are efficiently placed, Dave is able to irrigate his 100 acres of mint in 15 or 18 days from permanent pumping stations.

Cost of irrigation averages $2.50 an acre for each time covered. Only 60 kilowatts of electricity are used per acre to put on a 4-in. depth of water. Other, and more substantial, costs are those of labor employed in moving laterals together with a very generous allowance for depreciation.

Non-irrigated mint fields may yield as much as 35 pounds of mint oil per acre for the first year of production. This yield, however, steadily decreases and, after three or four years, the return per acre diminishes below the cost of production.

Irrigated peppermint fields generously watered frequently produce from 60 to 70 pounds of oil to the acre. An abundance of water stimulates prolific, oil producing leaf growth and encourages strong roots for next season's plant growth. Life of the watered planting increases in-



Short coupled centrifugal pump lifting water from a dug well. Five h.p. motor; 2-inch pump. Note how delivery pipe is increased from 2 to 3 to 5 inches to cut down pipe friction and save power. Pump capacity is 125 gallons per minute.

definitely. Dave still obtains abundant yields from one consistently good mint field now 15 years in production.

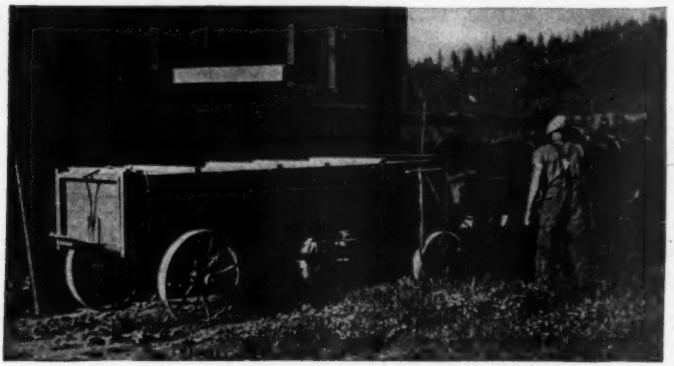
So, Dave Turnidge is not backward in saying:

"To irrigate or not irrigate mint is the choice of remaining in or getting out of business."

Plenty of water for peppermint fields economically supplied by electrical pumping has steadily maintained high average yields for Dave Turnidge, who is one of the larger and most experienced mint producers in the Willamette Valley, Oregon.

* * *

EDITOR'S NOTE. Mint is a specialty crop which grows especially well in only a few sections of the United States. Markets are limited and prices tend to fluctuate widely. This article is printed not because of the mint, but because of the irrigation. Many other crops widely grown, such as legumes, grasses, vegetables, berries and potatoes will frequently give equal or better response to irrigation water applied in a similar manner.



Joe Ott's liquid manure spreading wagon.

It Pays to Save Manure

By BEN W. FABER

"IN America we often waste more than we raised in the old country."

Thus spoke Joe Ott of near Hillsboro, Oregon, as he proudly surveyed his liquid manure pump installation. "A Swiss farmer," says Joe, "would not think of wasting his liquid manure—the best part of the fertilizer."

For 25 years a liquid manure tank for the Ott farm was only a dream. Now Joe has a tank under the barn which will hold more than 6,000 gallons. He also has an imported Swiss pump which handles both straw and manure. This liquid manure pump is powered by a two-horsepower electric motor.

The barn is cleaned daily. All the manure is washed out of the gutter through a trap door into the tank.

A tank wagon holding about 600 gallons is used to spread the liquid on the fields. The pump elevates the liquid manure from the main tank into the wagon. A small opening in the rear of the wagon with a spreader board allows the solution to spread out in a fan shape on the ground.

The Ott's manure handling has been a success. The liquid manure helped grow eight loads of hay where five grew without it. This fertilizer has been used on such crops as vetch, oats, alfalfa, clover and wheat.

"It only takes less than two minutes to fill the wagon so the electricity cost for pumping is so low that we can forget it."

The Ott's make good use of electricity. In addition to the motor on the liquid manure pump, there is a five-horsepower motor for wood sawing, hay chopping and silo filling. This five-horsepower motor will be used for irrigation beginning this season. In the dairy a water heater keeps water hot 24 hours a day. In the home there is the radio, washer, iron, toaster and other small appliances.

Motor driven manure pump on the Paul Oblander farm, Oklahoma.

Check Silos Before Filling

Just because concrete staves are regarded as inelastic, one cannot assume that reinforcing hoops on a silo which has once been filled are tight enough when they appear snug. It is probable that expansion and contraction of the silo parts has resulted in readjustment and loosening of tension. Even a slight decrease in hoop tension may result in mortar cracks between staves under the pressure of ensilage. If excess juices are present they will enter these cracks and may cause accelerated etching or corrosion of the concrete and mortar.

It is a good idea to check all of the hoops for tightness before filling the silo this year. Since damage can be done by overstressing the rods through the use of a long handled wrench, it is suggested that an open end type of wrench not exceeding 10 inches in length be used for the job.

W. C. Krueger, N. J. Ext. Service

But the Wire Is Too Small!

"The ———— hay hoist is just what I want, but it requires a larger motor to operate it than I had figured on. And as I am not properly wired to carry the load, I cannot use the hoist this year."

There are a lot of cases similar to that. The least expensive time to make the wires large enough is when they are first being installed.

In tests made by the Department of Agriculture in conjunction with Cornell University it was found that spraying apple trees with naphthalene acetic acid prior to harvest would reduce the normal dropping of apples by over 50 per cent.

Right: Tom Davis packing and cold storage plant. The low building of cinder blocks at the right is the storage room. Small door near tree at right opens into the compressor room.

•

Below: (at left) 3,000 bushel storage in a built-over cow barn on the Hartley Nixon farm. Cinder block section is cold room. Box storage above.

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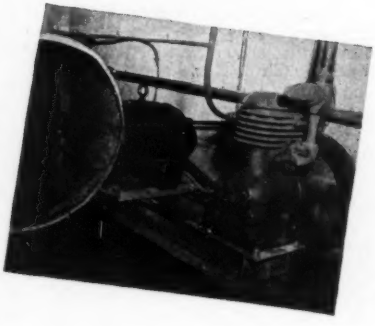
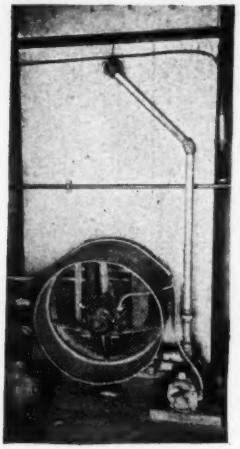
Below: (at right) 3 hp., 2-cylinder compressor unit with fan motor at the bottom of the cooling tower showing at the left.

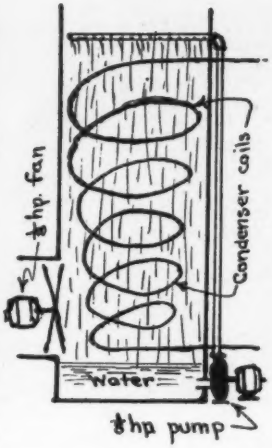


FARM COLD STORAGE PLANTS

COLD storage on the farm is becoming of increasing interest and economic importance to growers of fruits and vegetables. Storages with modern electric refrigeration equipment are being built for $1 to $1.25 per bushel capacity in plants as small as 2,000 bushel size. Larger plants cost correspondingly less per bushel capacity. In recent years commercial cold storage costs have been reduced to as low as eighteen cents per bushel in some cases, but, on the average, farm plants which have been installed are operated at 5c to 10c per bushel less than commercial storage charges.

Storage room with cement over cork walls and floor. Overhead, in the center under the stringers, is the duct system with dampers to control the flow of cold to all different parts of the room. In the large end of the duct is a ½ hp. two-speed fan which blows the air through the cooling coils and ducts.





Cooling and condensing stack. At left is a picture showing the stack with the water pump on floor at right and ⅛ hp. fan in the front of the stack. At right is sketch showing the water spray over the freon condensing coils with air blast up through the stack

There are other advantages, too. The saving in hauling and packing during the busy season, getting the products into storage more quickly and in better condition, convenience for later selling in any desirable quantities and for grading and packing at one's convenience, all add to the value of farm storage. Storage rooms are not limited to one crop per season, either. Vegetables and berries come in succession during the summer. Peaches store well for short periods. Apples, pears or even eggs may be a main crop. Then there are possibilities for market potatoes, seed potatoes and temporary ice storage.

The 2500 bushel storage of Tom Davis of Woodstown, New Jersey, is a very practical installation which has paid its way. Mr. Davis is an active Farm Bureau member who grows tomatoes and asparagus as main crops. His storage was built in 1939 by farm labor under the supervision of W. J. Staats of Camden, N. J., at a cost of about $3,000. The storage room, 20x26 x9 ft., is of cinder blocks with 4 inches of sheet cork insulation. It was remodeled from an old barn, the main part of which is used as a packing shed for vegetables. The compressor unit is of 2½ ton capacity, uses freon gas, and is driven by a 3 hp motor. The unit is oversize to provide capacity for quickly cooling asparagus cut on warm days.

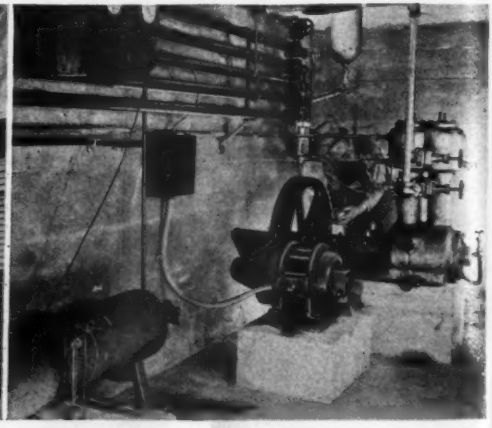
A clever and original part of the refrigeration plant is the combined cooling and condensing tower designed to conserve cooling water. This consists of a sheet steel stack about 8 ft. high with a float-controlled water reservoir in the base. This water is pumped by a one-eighth horsepower centrifugal pump into a perforated pipe coil at the top of the stack which sprays the water down over the condenser coils which spiral up through the stack. A one-eighth horsepower fan blows air up through the stack, cooling the condensing coils and also the water spray by evaporation. (See illus.) Cold air is circulated through the storage room by a system of ducts and a fan.

The asparagus season lasts about one month. The crop is sold to hotels and grocery stores. The demand is greatest and price best near the end of the week. This calls for daily storage. While this plant was intended to be used in the fall for apples, it paid its way very well last year on asparagus alone.

Similar Plant On the Hartley Nixon Farm

Another plant similar to the Davis storage is on the farm of Hartley Nixon near Pedricktown, N. J. It is of 3000 bushels capacity and has the same size and style of refrigerating equipment. The storage room is in a reconstructed cow barn. The first floor structure was cut off at the ceiling and an understructure built of cinder blocks insulated with 4 inches of cork. The cost of this plant was about $1 per bushel capacity.

Left: 4,000-bushel cinder block storage house of R. G. Williams, Wytheville, Va., built in 1934 at cost of $5,000.



Right: Four ton, 7½ hp., second-hand compressor unit used for cooling.

Moose farm from the air. From left: Poultry house, shop, barn, milk-house, residence and tent erected for the meeting. Just to the left of the tent are the brooder houses and nearby is an insect light trap in the garden.

FARM USE OF ELECTRICITY IS SOUND

By GEO. W. KABLE

A FEW weeks ago a meeting was held on the farm of R. N. Moose and Sons near New Wilmington, Pennsylvania. It was a "come and see" meeting following a nine months' test period of sound business uses of electricity on the Moose farm. The test and demonstration was sponsored by the local chapter, Future Farmers of America, of which the Moose boys are members, the Agricultural Engineering Department of Pennsylvania State College and the Pennsylvania Power Co. Actually, Mr. and Mrs. Moose and the boys constituted the "executive committee," for they decided what would be done with electricity, selected the equipment from local dealers and paid for it with their own money. Since the equipment and the electricity had to be paid for, only those things were installed which seemed reasonably certain of producing a profit on that particular farm. Such a common-sense start is worthy of note.

Mr. Moose keeps records. Each appliance is separately metered, so he knows what it does and what it costs. Here are some of his records:

A total of 8,512 gallons of milk were cooled in 9 months using 456 kw-hrs at a total cost of $9.12 or 25c per week (Aug. to Apr. incl.). Bacterial count was never above 3,000. No milk rejections. Before installing the cooler, the milk was carried 300 ft. to the springhouse and back—and that for a second-rate cooling.

A 7½ hp utility motor chops hay and cuts ensilage. Forty tons of hay were chopped in 15 hrs 37 min using 180 kw-hrs of electricity costing $3.60 or 9c per ton. Ensilage totalled 45 tons cut in 9 hrs 37 min with 97 kw-hrs costing $1.94 or 4.3c per ton. Chopped hay handles easier and faster and occupies only half the space of long hay. No silo filling crews to wait on or feed.

The hand corn sheller married to a quarter horsepower motor produced 308 bu of shelled corn for 6 kw-hrs costing 12c.

Freshly ground feed was provided by means of a small hammer mill

Farm people hear the story of the Moose farm results. About 300 attended in spite of the good working weather in early June.

belted to a 3 hp motor. In 7 months 10,545 lbs of oats, 10,720 lbs of shelled corn and 9,840 lbs of ear corn (total 31,105 lbs) were ground, using 276 kw-hrs costing $5.52.

The ground feed was mixed with other ingredients totalling 50,395 lbs in a vertical ¾ hp mixer with 31 kw-hrs of electricity costing 62c.

Cold room brooding is practiced on the Moose farm in well ventilated brooder houses, using three different types of electric brooders. All gave good results. A typical brood of 200 chicks started February 16, 1940 and brooded 39 days with outside temperatures of 10° to 40° used 228 kw-hrs of electricity costing $4.85 with a mortality of 3 chicks.

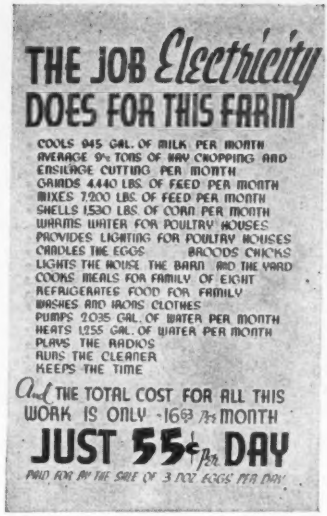
Water warmers operated in the laying houses from December to March used 569 kw-hrs costing $11.38. Mr. Moose estimated his increased egg sales due to warmed water at $100.

Lighting in the hen houses from October to April, using a time switch to keep the light-day uniform, cost $4.85—242½ kw-hrs.

Running water is one of the real joys on the Moose farm. In eight months, 16,283 gallons were pumped under pressure at a cost of 30c or less than 1c per week. That's too low, but the meter recorded it.

Clothes washing for a family of eight is done in 5 hrs per week at a cost of 1c for electricity. Ironing with the electric ironer and electric iron used 74 kw-hrs in eight months and required about 3 hrs per week at a cost of 4.7c for electricity.

In eight months 10,040 gal of water were heated to 150° using 2,900 kw-hrs of electricity. Cost 97c per week.


THE JOB Electricity DOES FOR THIS FARM
COOLS 945 GAL. OF MILK PER MONTH
AVERAGE 9½ TONS OF HAY CROPPING AND ENSILAGE CUTTING PER MONTH
GRINDS 4440 LBS. OF FEED PER MONTH
MIXES 7200 LBS. OF FEED PER MONTH
SHELLS 1530 LBS. OF CORN PER MONTH
WARMS WATER FOR POULTRY HOUSES
PROVIDES LIGHTING FOR POULTRY HOUSES
CANDLES THE EGGS
BROODS CHICKS
LIGHTS THE HOUSE, THE BARN AND THE YARD
COOKS MEALS FOR FAMILY OF EIGHT
REFRIGERATES FOOD FOR FAMILY
WASHES AND IRONS CLOTHES
PUMPS 2035 GAL. OF WATER PER MONTH
HEATS 1255 GAL. OF WATER PER MONTH
PLAYS THE RADIOS
RUNS THE CLEANER
KEEPS THE TIME
And THE TOTAL COST FOR ALL THIS WORK IS ONLY $16.63 A MONTH
JUST 55¢ PER DAY
PAID FOR BY THE SALE OF 3 DOZ EGGS PER DAY

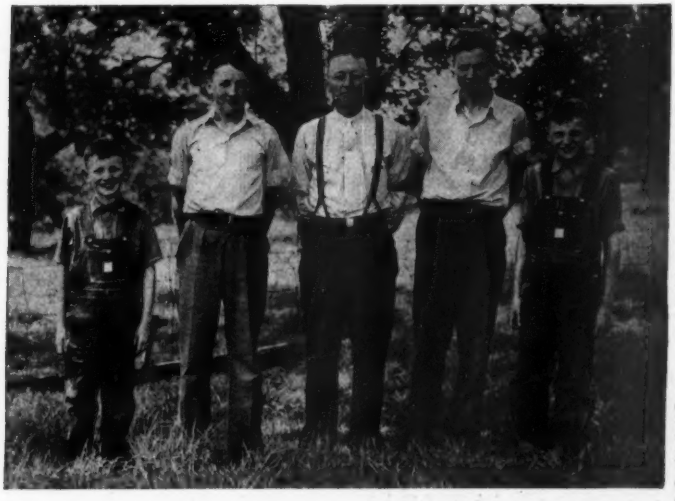
The cooking and baking record for that same eight months is impressive. It included 384 loaves of bread, 32 cakes, 3,000 cookies, 130 pies and 5,646 meals. Cool kitchen, automatic temperature control, fuelless, ashless floors—all for 1,398 kw-hrs costing 84¼c per week.

The 8 cu ft refrigerator did its cooling and freezing job for 14.7c per week. Electricity used was 235 kw-hrs in 8 months.

That's a lot of figures. But it is about as carefully taken a record of a farmer's farm, operated under good farm management, as you can find condensed in that small space. It's worth keeping. The power bill on the Moose farm has averaged $16.63 per month or 55c per day—that in place of fuel, ice, trips to the spring, water pumping and carrying, rejected milk, low winter egg production and a lot of hard work.

Some of you may be thinking that the cost of electricity at the Moose farm is lower than at yours. The rates in this industrial area around Pittsburgh are low. The chief reason for the low rate on the Moose farm, however, is that enough electricity is used to get down to the lowest block of the rate. That method of lowering rates is open to everyone.

The kilowatt-hours and machinery and refrigerators on this Moose farm are most interesting, but not nearly so interesting as the boys who have developed along with it. There are four of them. One is President of the local chapter FFA, one Past President, and the other two future Presidents. Every one is a business partner on the farm. Every one is genuinely enthusiastic about farming and is planning to farm for himself. They are proud of their good cows; they are proud of their electrical equipment and modern methods; they are proud to be farmers. We need such boys. Electricity does more than just turn motors and cool milk.



R. N. Moose and his four farmer boys

Farm Week at the Fair

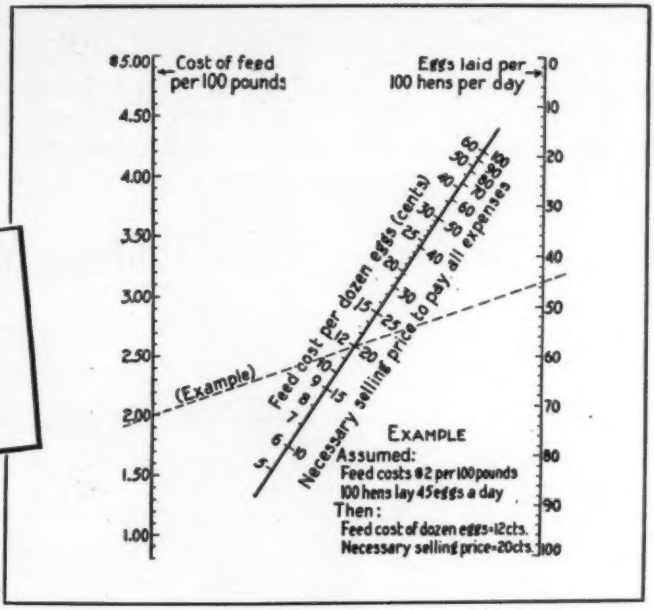
(*Here from page 6*)

the Fair at a price well below the regular 50c admission and with reduced rates on Midway attractions.

All farm people will be especially welcome at the Electrified Farm, which is near the Long Island Railway and IRT subway entrances to the grounds. Ask at the information booth for rest rooms in the mow of the barn and for a place to meet your friends. This "mow" lounge is not open to the general public, but farm people are welcome. Mr. Robt. N. ("Doc") Alden is in charge of the Electrified Farm, and he and his 10 or 12 assistants will welcome you. And don't hesitate to ask questions there. "Doc" was born in Anna, Illinois, graduated in agricultural chemistry from Mississippi State College and has had a lot of "fork handle" farm experience. This is his second year at the Fair.

To prevent books from mildewing in humid weather, the U. S. Bureau of Chemistry and Soils suggests placing one or more half-filled cans of lump lime on shelves behind books; with the added warning that the lime expands when absorbing moisture and may overflow a can filled beyond the half-way point.

WITH cod liver oil and other feed prices threatening to take an upturn, poultrymen should be more interested in what kind of production it takes to make a profit in feeding hens, or at what point they should stop buying feed and sell the hens. The chart is published by courtesy of the Division of Poultry Husbandry of the University of Illinois.



Calculating the COST OF EGGS

Lay a straightedge across the chart connecting your cost of feed and the number of eggs laid per 100 birds per day. Where it intersects the sloping line, read your feed cost per dozen eggs and what you must sell for to pay expenses. The chart is based on 22.5 pounds of feed per day per 100 hens, or 82 pounds per year per hen. It is assumed that the feed is 60 percent of the cost of production, which is about right for farm flocks under normal conditions. If feed prices are abnormally high or low in relation to labor and other costs, the selling price indicated will be correspondingly high or low.

Note that electricity may help lower feed costs through home grinding and mixing and possibly through the use of ultra-violet light in place of cod liver oil. Under some conditions irrigated and dehydrated alfalfa or green feed crops may help. Eggs laid per 100 hens may be stepped up by intelligent fall and winter lighting or by use of ultra-violet light in combination with good feeding and management practices. Drinking water warmers in freezing weather will also help.

Outdoor Brooding in the Rain

EVERY now and then we hear of some poultryman who has set up an electric brooder out in the yard on the grass, and, to everyone's surprise, raised a good brood of chicks. Recently we learned of another one. Mr. O. R. Maynard lives out from Coudersport, Pa. Don't tell the Chamber of Commerce, but it is reported that they have 11 months winter and one month cold weather up there. It's too cold to raise corn.

Last spring, Mr. Maynard, using a standard galvanized iron brooder with a fan, started 275 chicks in a 500 chick size brooder, placing it on his lawn with no cover over the brooder. On the third day it rained and the chicks got wet when they came out to feed. The chicks did not mind the rain and showed no bad after effects. A 90° temperature was held easily under the brooder which was moved every second day to a fresh location. Up to the time the chicks were 3½ weeks old, and when this information was obtained, only five chicks had been lost, and that in spite of the cold, rainy spring.

Outdoor Chicks Best Ever Raised

The electricity used for operating the brooder is probably somewhat greater for outdoor operation than in a building. Mr. Mayuard was so well pleased, however, that he says he would be willing to pay three times the normal operating cost in order to have the advantages of outdoor brooding. He says these are the best chicks he has ever raised.

Electrical HOUSEKEEPING

Conducted by GAIL MEREDITH

DRINKS—SOMETHING VERY COLD

AT our house it is my husband who mixes the drinks. For a long time we've felt that one of the most satisfactory ways to get around the less pleasant features of August—a month we have nothing against personally—is to make the things we drink part of our daily food.

That means that our recipe file for thirstquenchers is a thick one. Besides E. R. is always trying out combinations of his own. Some of them are delightful; some, frankness compels me to admit, simply terrible. We forget those practically at once.

I suppose nothing has made it seem easier to make up a pitcher of drink in a hurry than somebody's smart idea of keeping a jar of sugar syrup and a jar of chocolate syrup all made up in the refrigerator, ready for instant use. When you add to that ice in convenient little square chunks just right to cool a glass of iced tea, you've brought the making of cold drinks to a matter of memory, imagination and research.

It is quite likely that our recipes for those basic syrups are the same as yours, but in case you have mislaid the directions for making them, here they are.

Boil together equal parts of granulated sugar and water for five minutes. After it is cool, put it in a glass jar, cover it tightly and set it away in the refrigerator.

To Make Chocolate Syrup

The chocolate syrup is just about as easy to make. Mix two cups of sugar and one half cup of cocoa. Add one cup of water and an eighth of a teaspoon of salt. Stir this until the sugar is dissolved. After it comes to a boil, let it cook for three minutes. Add vanilla and store in a covered jar.

We learned long ago that when we filled our glasses with ice cubes and poured a drink over them, the melting of the ice was bound to dilute the flavor of our drink. When we added to that the discovery handed down to us by experts that cold dulls the sense of taste somewhat, we knew that we just naturally had to make the drinks stronger to begin with.

For iced tea we use a teaspoon and a half of tea leaves for each glass. I put the tea into an earthen tea pot and pour boiling water over it, a cup for each serving. I stir it just a little and let it steep for about five minutes before I pour it off. If I'm making it just as we are ready to use it, I pour the tea over ice in the glasses, stick in the tip of a stalk of mint, and hang a chunky wedge of yellow lemon over the rim. If I make it in the morning for use later in the day, I pour it in a jar with a cover, let it cool and set it in the refrigerator.

I make coffee stronger when we drink it cold, too.

To prevent diluting our drinks, I sometimes pour one cup of coffee and two cups of water into the ice cube trays and freeze coffee cubes to chill a glass of coffee. And for iced tea, I freeze one cup of strong tea with half a cup of lemon juice and a cup of water. If I want something extra special, I even put a fresh green leaf of mint in each section to freeze in the cube.

Chocolate milk is one of my husband's favorite drinks. We make it —editorial we—by taking two tablespoons of the syrup and adding three fourths of a cup of milk. We beat it with an egg beater and pour it into a chilled glass. For lunch sometimes we add a scoop of ice cream which makes it practically food and drink.

One day last summer my husband, following a recipe some one had given him, made a drink that he called Lemon Fizz. First I set on to boil a cup of sugar and two cups of water. He added a judicious dash of salt and a golden dusting of grated orange rind. It fell to me to see that this was strained and cooled while he was squeezing oranges, lemons and limes to get two cups of juice. When the sugar and syrup were cool, he added the fruit juice

and poured it into the freezing tray. This mixture freezes hard and he scooped it out and put it in glasses, filling each tall glass about half full. Then he filled them up with ginger ale.

A year or so ago he invented a drink that starts with a jar of the apple juice that we can in the fall. He had made it with cider and with the commercially canned apple juice, too. The drink is good with all three. After he pours the apple juice into a big bowl, he adds orange juice and lemon juice until he gets the body he wants. Sugar he adds to the tasting, and a sprinkle of cinnamon, and just a whiff of mace.

In the winter he serves this hot, but along in August it is equally good ice cold.

It is hard to pin a man like my husband down to recipes. If he starts with grape juice or with pineapple juice, he just adds oranges or lemons, a little sugar, puts in a spoon of honey or another lemon until the mixture comes out to suit.

When we are serving a drink of this kind to his friends who've dropped in to chat with us on a hot evening, my husband likes to bring in the tray of tall glasses and the fat pewter pitcher with the ice clinking against the sides. Then he likes to have me follow him with a big

bowl of lemon ice or orange ice, or pineapple sherbet—on hand in one of our dessert trays these hot days—that our guests can dip out into their glasses to cool the drink and enhance the flavor.

Of course I may have spent hours squeezing fruit juices or making the sherbet, but when my husband pours the drinks and listens to the chorus of appreciation, I think he honestly believes he has done it all himself. I'm quite willing to let him. He has a flair for flavors. I can follow a recipe—but he can make one.

School Clothes for Girls

THE first day of school will be here before we know it, so now is the time to make little skirts, jackets, and blouses for your children to wear when the doors of the classroom open to all the girls and boys in the neighborhood. So pick up your needle and thread, open your sewing machine, and start to sew.

A jumper frock is ideal as a fall and winter school dress for girls of all sizes. It is prettier and warmer than a plain skirt, and just as easy to sew. Several dainty blouses and little tailored shirtwaists complete the outfit.

Anyone can make the little jumper frock shown in the illustration. It is made of blue velveteen and a blue, yellow, and red wool plaid. After cutting the pattern, make the darts in the bodice and then sew the side and shoulder seams. The bodice is left open at the front. Bind the arm and neck edges with silk bias binding on the inside, and tack with invisible catch-stitches. For a neat and strong finish, the seam edges should be bound with silk seam binding.

Sew the seams in the skirts, then pleat it, using the lines of the plaid as a guide. Press it well. Stitch it across the top, by machine. Attach the skirt to the bodice and finish the inside edge with seam binding. Make a hem deep enough so that it may be lengthened later if necessary.

Make five buttonholes on each side of the opening on the bodice front. Lace a cord through these and tie it in a bow. You can get a machine buttonholder that will make these and any size buttonholes in a jiffy, and to perfection. And incidentally, this attachment also makes tacking that is so often necessary in children's clothes to reinforce seams, plackets, pockets, etc.

To change the appearance of the outfit, make a blouse with five buttons sewed on where the buttonholes on the bodice meet the blouse. Take out the cord and button the bodice to the blouse. There will be five pairs of buttons running down the front.

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EIGHTEEN USES FOR MY VACUUM CLEANER

"UPON my return from a visit recently, I read a story in the February issue of your magazine entitled 'With A Cleaner On The Job' which I would like to continue from my experience! I used my vacuum cleaner, a cylindrical cleaner with hose attachment, to clean my piano which had become infested with moths. I cleaned all the felts of the pests, cleaned all the dust out and gave it such a thorough cleaning that it requires very little time now! I clean curtains and drapes without taking them down, upholstered furniture, mattresses, pillows, heavy coats, hats, mittens, besides the usual floor cleanings that everybody has done. Those were the jobs that I began on, and I was delighted with the results. But last summer and fall I found there were other uses for the cleaner. My Persian cat enjoyed a thorough grooming with the brush attachment!

But the hardest job my cleaner did was to thoroughly clean and disinfect my hen-house! It had become so infested with lice I could hardly bear to gather the eggs, but I took my cleaner into the battle and within 48 hours every louse had paid the death penalty, and I could work among the hens with comfort. I sprayed the hens also and how they did like it. It rid them of lice and did a regular job of cleaning. This is how I kept the cleaner clean on the outside. I cut the end from a flour sack, slipped it over the cylinder of the cleaner, wrapped the long hose with long stockings. All parts except the runners were covered which is quite necessary in order to keep it clean

for future house work. Then I mixed the spray, which did not need agitation as for whitewash, poured it into the spray can which is part of the equipment that comes with the cleaner, reversed the hose to the blow end, plugged in and Presto! Lice curled up and died like flies.

"For waxing floors and furniture of large surfaces I have nothing to equal the job that can be done with my cleaner! Then the inside of the automobile gets so dusty; just a few minutes with my cleaner and every thing is spic and span! To blow the dust and litter from the threshed beans I use my cleaner! And the same machine dries my hair after a shampoo! Flies in the barn are sprayed much easier with my cleaner than can be done with a hand sprayer, and I think it more effective.

"There is another job I have used mine for, and that is to spray rose bushes and other plants that are near enough to a service outlet to be reached with the outfit. It does a thorough job in that capacity also. And an extension cord may be used to increase the distance to be reached!

"It would be hard to find a more convenient place to keep my cleaner than where it is now, behind a convenient door with the hose hung over two nails so as not to bend enough to break the fabric! I keep it handy because almost every day there is a job for it! It would take too much time to have to assemble it every time it is used. I always clean and empty the bag every time it is used, as it seems to pick up better when it is clean inside, and it is always ready for instant use."

MRS. T. J. NECKERS, Clymer, N. Y.

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FANNED OUT

IF you haven't time to sit down and fan yourself these hot summer days, you can buy a permanent breeze with an electric fan. These motor made winds will not coax the red column in the

porch thermometer to drop a single degree, but they will make the whole family as comfortable as though it were falling. Moving air does that:

WHY I WOULD LIKE TO COOK WITH ELECTRICITY

(Winning Letter for May Contest)

"I'M TIRED, I'M HOT AND I'M BOTHERED! And the cure for these conditions has never, to the best of my knowledge, been pushed across the prescription counter of any drug-store. Altho why in this modern stream-lined era some ultra-modern druggist doesn't tuck away among his nostrums, panaceas and pink pills that one sure-fire remedy that will rejuvenate and revitalize the tired farm-wife—an electric range—is a mystery to me.

"I'M TIRED of continually feeding wood into my range. It's too much like trying to satisfy some monster with an insatiable appetite—or like watering the circus elephant. I'M TIRED of taking down stovepipes and cleaning out soot while covering myself with the same. I'M TIRED to death of emptying ashpans. Now I'm not inherently indolent, but I do hate wasted effort. So I want a stove that doesn't have to be continually replenished. I want a stove that is immaculate and can easily be kept so. I'M TIRED of staying in or near my kitchen while things cook. I want to set the dial on an electric range—adjust the heat control as the glamorous creatures in the magazine ads do—and hie me elsewhere while the dinner cooks to a queen's taste without my personal guidance. So—the electric range is the only 'answer to this maiden's prayer.'

"I'M HOT a great deal of the time, as my kitchen is very, very small while unfortunately my range is very large, so that no matter how high the mercury climbs I am always within a few short feet of a hot stove. I figure that I prepare some ten-hundred meals annually as a matter of course, and throw in some six to seven hundred quarts of canned meats, vegetables and fruits (mostly by means of the pressure canner route) for good measure. So I want a stove that keeps cool—especially on torrid summer days—and that lets me keep cool also.

"I'M BOTHERED because unfortunately I'm not one of those cooks who was born with cook-book in one hand and measuring cup in the other. I haven't the born cook's sixth sense as an absolute guide on temperature, etc. Now, if one isn't so endowed, just how is one supposed to **guess** correctly as to temperature? Doubtless many delightful confections have been completely ruined by a variation of not more than a hundred degrees or so from the one called for in the recipe. As for myself, I can't take a pinch of this, add it to a handful of something else, guess the temperature exactly right and take a dish from the oven that is ab-so-lute-ly right. I've got to know measurements, exact temperatures as registered on a thermometer, etc. Modern recipes and modern precision take all the guesswork out of cooking, and so I want an electric range to cook on since it can give me this precision and this accuracy."

MATTIE PATTERSON
R. F. D., Granton, Wisconsin

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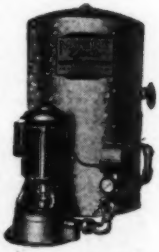
There's a MYERS Water System to meet every need: for operation by electricity, gasoline engine, windmill or hand power. Deep and shallow well models in both the standard plunger types and the new Ejecto types. Complete information FREE.



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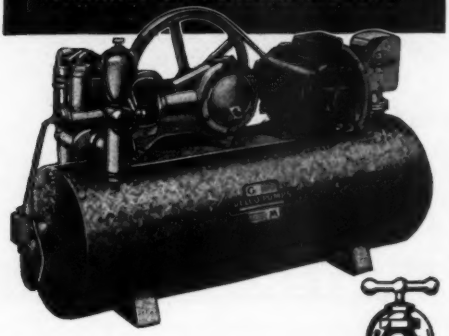

There are automatic Electric Delco Water Systems for deep and shallow wells with capacities all the way from 225 to 600 gallons per hour, so you can select the one size that is just right for you and, therefore, the one that is the most economical for you to both buy and operate.

The Delco dealer can estimate how much water you will use in kitchen, bathroom, yard and barn and tell you how big or small a Delco Water System will be necessary to do the job right.

As size and type of pump and pressure tank are so vital, and as the Delco dealer can supply all sizes, it will really pay you to consult him before you buy.

Your name on the coupon will bring worthwhile information and save you worry and needless expense. No obligation, of course.

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Gentlemen: Please show us how we can estimate our water requirements.

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AUGUST CONTEST

This month the contest letters are to be on a particularly timely subject. "Electricity helps me outwit the heat." The more you think about it, the more you'll see how far reaching its influence is, I'm sure.

We'll pay the writer of the winning letter five dollars. For any other letter we publish, we'll pay one dollar.

Please send me your letters by August 31, 1940. The address is Gail Meredith, 700 S. Mills, St., Madison, Wis.

it makes you feel cooler right away.

There are small fans in many colors and many sizes for all over the house. Black and bronze for the porch and the living room; ivory, cream or green for the bed rooms upstairs.

A small, quiet fan set near an open window will bring a restful night's sleep when the air is heavy and hot. It cools the children off for a nap and carries comfort to a patient tossing on a hot bed. Some folks like to hang a fan from a peg on the wall so it can sweep its breezes across the room. Placed under the bed it stirs up a gentle circulation without blowing directly on anyone.

During the day time the girls of the family are very apt to put these fans to other use. Their winds will dry a few wisps of silk very quickly, hurry up a row of white shoes, wet with cleaner, and, out in the kitchen, will speed the cooling of a bowl of jello before it goes into the refrigerator to harden.

For the downstairs rooms the available fans have been increased by a group mounted on pedestals as tall as a floor lamp.

Nowhere in the house are fans more useful than in the kitchen. A portable fan near the window brings a pleasant little breeze to bear on all the kitchen activities. This is the simplest form of kitchen cooling.

In addition there are many kinds of exhaust fans that can be set in the ceiling over the stove, in a wall, or mounted on a panel of metal or glass in the upper part of a window. When you turn on a fan like this, it immediately begins to draw out of the kitchen the greasy smoke of frying hamburger, the pervading smell of cabbage, and the heavy sweet odor of spiced sugar syrup at pickling time. The cooler air from the rest of the house comes into the room as the warm "thick" air moves out through the fan.

There is much to be said for winds that come at your call,—a gale or a cap full. On the porch and inside the house the little winds will always stir up a tiny pool of coolness where you can sit and be comfortable. For the moment, at least, the heat of August is fanned out.

• • •

Cheese and Egg Salad

2½ cups cottage cheese
2 hard cooked eggs, chopped
½ cup cream
10 lettuce leaves
½ tbsp. grated onion
½ cup chopped olives
⅔ cup whipped cream
1 pimento

Mash the cottage cheese until fine. Add the cream, eggs, onion and olives. Serve on lettuce garnished with strips of pimento and any dressing desired.

Great-Great-Grandmother at Two Months of Age

Entomologist F. C. Bishopp of the United States Department of Agriculture has announced that there are many great-great-grandmothers in this country at the youthful age of only two months (page Herr Hitler). One of these old ladies may have as many as 27000 offspring in three months. The Dictators are welcome to them too, for they live in manure piles, decaying matter and outhouses; and they wipe their feet in the sugar bowl and grease their legs for evil meanderings in the butter dish. They would destroy us if we did not arm to protect ourselves. Get your farm Dies Committee after them. Destroy their breeding places. Watch for their aerial invasion. The blitzkrieg is due. Better set up your anti-air-grandma sprayers and parachutist electrocutors. It's fly time.

Milk Cooling Requirements

Milk cooling tanks of the mechanical refrigerated type should have a capacity of approximately three gallons of water for each gallon of milk to be cooled in a 12-hour cooling cycle if the unit is so designed that ice forms on the cooling coils.

Units designed so that no ice is formed in the tank and those which are dependent on a direct water-to-milk heat exchange should have a capacity of approximately five gallons of water for each gallon of milk to be cooled. In order to cool milk over an aerator to within five degrees of the aerator cooling water, approximately 10 gallons of water are necessary for each gallon of milk cooled. Insulation of non-mechanical milk coolers using water or ice is well worth while for insuring lower temperatures.

Milk cooling tanks of the immersion type, if adequately insulated, do not show a saving in operation costs when power is shut off between cooling periods as compared with keeping the compressor on thermostatic control at all times. Many dairymen pull the switch between cooling periods in the belief that electricity is saved. This practice generally means a greater continuous load on the compressor during the restricted operation periods.—*W. C. Krueger, N. J. Extension Service.*

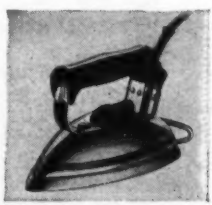
"I have an idea. You say the baby's getting spoiled and Pop says that thing keeps fruit and vegetables from spoiling. . . !"

So many "extras" with a Singer Electric!

A smart farm buy

Farm women, especially, find a Singer electric sewing machine a smart buy! A Singer Shop can always be reached for supplies, repairs, or accessories. Singer sewing schools give free help with sewing problems. Singer is the only organization that can give you these services.

And the new Singer electrics themselves are a joy—sewing swiftly and easily on everything from sheer organdies to heavy denim overalls!



Many models, many prices! Terms start as low as $3 per month. Liberal trade-in allowance on your old machine. For a demonstration in your home of Singer electrics, Singer vacuums, and other appliances, just drop us a card. There's no obligation!

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"1500 Singer Shops and Authorized Distributors"

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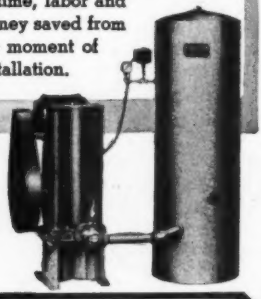
WHY DO This?

Do It Easier with Running Water

● Banish forever the drudgery of hand pumping! Do it the easier and better way by turning a faucet. Then you can enjoy the convenience of running water wherever it's useful.

● With an Aermotor Electric Water System you can have running water, under good pressure, everywhere at surprisingly low cost. Think of its helpfulness in the barn, kitchen, bathroom, and in improving the family health.

● You will find an Aermotor Water System full of new and exclusive features. It is thrifty in upkeep, and a permanent investment which will pay you big dividends in time, labor and money saved from the moment of installation.



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Send free "Facts" Book about Aermotor Water Systems, and name of nearest dealer.

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Address _____

Power Consumption 1940 Refrigerators

Question: *I would like to have the average amount of kw-hrs. a six cubic foot* 1940 *refrigerator uses. Am interested in either Westinghouse or Frigidaire. Which is best?* N. N., Mich.

Answer: The average kilowatt hour consumption for 1940 models of refrigerators in the six-cubic foot size is around twenty kw-hrs. per month. This is a reduction of around three to five kw-hrs. over many of last year's models. We cannot tell which make of refrigerator is best because we do not know. All of the standard makes are very good this year.

Will 6 Watt Bulb Give 75 Watt Light?

Question: *Did A. M., Wisconsin, mean 6 watt or 6 volt?*

Answer: So many readers wrote that they thought A. M. meant 6 volts in the question on page 29 of our May issue that we give you the answer for 6 volts contributed by L. C. Porter of the General Electric Lamp Dept. "A 75 watt, 110 volt lamp emits approximately 88 candlepower. The nearest 6 volt lamp to this is rated 6-8 volts, G-16½ bulb, bayonet candelabra base, searchlight lamp. It emits approximately 100 candlepower. Price $1.25."

Battery Operated Fly Traps

Question: *I have noticed several electric fly traps advertised in your magazine, but have never been able to find any statement as to whether such traps are available for use with batteries. I wonder if you could give me this information and if such equipment is available, the name and address of the manufacturer.* E. F. R., New Mexico.

Answer: All of the electric fly traps with which I am familiar operate on alternating current. The reason is that a transformer is used to step up the voltage and cut down the current, and transformers can be used only on alternating current circuits. There is no reason why a fly trap or screen could not be made to operate on a battery circuit similar to a battery type electric fence controller.

Power Required for 8-in. Burr Mill Motor Oiling

Question: *What size grinder and crusher burrs will a* 3 *h.p. motor pull? Will it handle* 8 *in. burrs? What size pulley should be on the grinder with a* 4 *in. pulley on a* 1750 *r.p.m. motor? What grade of oil should be used and how often?* R. R., Va.

Answer: The horse power required to operate a burr mill depends more upon the speed of the grinder, the fineness of grinding, and the rate of grinding than it does on the size of burrs. Your three horse power motor will easily handle a mill with eight-inch burrs. If the mill has plain bearings, it should be run at a speed of about 500 r.p.m. Use a 14 or 15 inch pulley on the mill, with a

four-inch pulley on the motor. If the mill has ball or roller bearings, it may be run at speeds up to the speed of the motor, i. e., 1750 r.p.m.

A paraffin base engine oil, S. A. E. 20, makes a satisfactory motor oil. Oil motor about once every two or three months. Do not use enough oil to get on motor windings or frame. If ball bearing, clean bearings and repack as manufacturer instructs, possibly once every two years. Ring oiled bearings should be drained and refilled every year.

Safe to Buy Newest Type Equipment?

Question: *Should a person adhere to the old proven ideas of manufacture? Or is it a safe bet to buy refrigerators incorporating some of the new ideas, such as three-temperature boxes that have not to our knowledge proven themselves?*
F. H. H., Wash.

Answer: You have stated in your letter some of the problems which confront all of us who have new equipment to buy. Where can we get the most for our money? Should we be right up to date or let someone else try the new devices first? I will not try to answer completely, but will give you some facts from which you can draw conclusions.

The operating mechanism of refrigerators and the insulating materials have not changed radically in recent years. Most companies are coming to sealed-in units. The company that made the first three-temperature box had some difficulty with their humid compartment because of too much humidity. This has been corrected by providing adjustable ventilators in the shelf. I understand the company supplied replacement parts for these first refrigerators without cost. The zero compartment for keeping meat is just an extension of the ice cube compartment and involves nothing new. Personally, I would favor the latest models offered this year, as I know of no difficulties which exist with them.

Ultra-Violet and Infra-Red for Cows and Calves

Question: *We have a request from a customer for information regarding sun lamps for his dairy cows and calves. He wants to know about the use of sun lamps for the general health of his cows and calves. Is it practicable? If so, what equipment is used and how is it used? He also has specific trouble with mastitis (udder trouble). What help can he expect from sun lamps either to cure or prevent this?* F. M. W., New York.

Answer: The evidence for or against use of ultraviolet light on dairy cows and calves is not conclusive. The Ohio Agricultural Experiment Station at Wooster, Ohio, has been working in cooperation with engineers at the General Electric Lighting Institute, but so far as I know, no report has been issued. I believe the University of Wisconsin has shown that irradiation of the cows does not add Vitamin D to the milk.

About a year ago, I visited a farm near Milwaukee where CX lamps had been used on pigs and S-1 lamps on dairy cows. The man had purchased a registered dairy cow at a sale for a ridiculously low price, because the cow was in bad health. He put her under the sun lamp, and she

Sharp Freezing and Zero Storage
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Typical "Bank" of frozen food in an ESCO on an Indiana farm.

Now you can freeze your own food right at home with the New ESCO Low Temperature Refrigerators. You can enjoy the healthful goodness and natural freshness of your own frozen foods the year 'round.

There's a size for every need—four distinct lines —48 Models with capacities from 8 to 40 cubic feet.

Model FTD-24 ESCO Freezer-Storage Cabinet used on The Electrified Farm at the N. Y. World's Fair.

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See ESCO Electric Milk Cooler, Cold Room and Sterilizer on Electrified Farm at the N. Y. World's Fair

NEWS

Underwriters' Laboratories approve PRIME High-line Electric Fence Controllers

You enjoy money-saving, money-making benefits, with complete assurance of safety.

Now science gives the "go ahead" to your use of this modern tool for more profitable farming! Now you can do *any* fencing job with perfect peace-of-mind, holding *all* farm animals safely and securely under *all* conditions, *all* over the farm — using a PRIME High-line Electric Fence Controller.

Underwriters' Laboratories, the nation's final authority on electrical equipment, put the PRIME through months of punishing tests before awarding it the famous Seal of Approval . . . Every day, you use equipment approved by the Underwriters: the wiring in your house and barn, motors, electric pumps, household appliances.

***Now* you can have Underwriters' protection as you fence this modern way: building permanent fence, saving pasture with temporary fence, protecting present fences — doing it quickly and easily, at a fraction of the usual cost.**

So do as thousands of successful farmers have done — get a PRIME and start enjoying those savings. See your PRIME dealer *now.*

Write for his name.

The Prime Manufacturing Co.

1669 S. First Street • Milwaukee, Wisconsin

had come through in fine shape; so he was enthusiastic. For any dairyman who is up and coming and who is willing to do a little pioneering without expecting the dollars to fly in his face, I would not hesitate to recommend the use of ultraviolet during the winter and spring months. Based on the few reports we have, it seems quite certain that it does have a very beneficial effect on the health of the animal. If the dairy is producing market milk, it would also have advertising value.

My recommendation would be to use the new S-4 lamps, as they produce about as much ultraviolet as the S-1 and use only about one-third as much electricity.

For mastitis, CX lamps in aluminum reflectors should be most helpful. A farmer in Vermont is using such a lamp very effectively. For this use, the CX lamp would be good mostly for its infrared rather than its ultraviolet production. The CX lamp for heat production is better, I am told, than regular heat lamps because the shorter wave lengths of light and heat penetrate more deeply into the skin and flesh. Again, I do not have specific results to cite on the treatment of mastitis, but since it is a heat treatment, it seems reasonable that infra-red would be most effective.

What Is It? Here Are the Answers

1. Field coils of the 10-inch fan motor in which the armature (5) rotates.

2. Carbon brush for a ¼ hp. motor. The coiled spring holds the brush against the rotating commutator and the stranded wire inside the coil carries the electricity to the brush.

3. Looking down inside a duplex lamp socket. In the center is a metal spring which carries the current through the metal contact on the center of the lamp base to the filament. The other side of the circuit is completed through the brass screw threads.

4. Porcelain pendant on a pull-chain lamp socket. These are used in bathrooms and over sinks to prevent possible shock from stray currents coming down the pull chain. Porcelain is an insulator. They are used in bathrooms and at sinks because the water pipes and metal faucets make a perfect circuit for electricity to ground, and any leakage currents might give a shock to a person touching the chain and faucet at the same time. Insulating links are sometimes used in the chain in place of the porcelain pendant.

5. The armature (rotor) and shaft of a 10-inch fan motor. Thimble shows relative sizes.

6. One of the newer electric irons with permanent cord attachment. There is no plug to pull out or wear out. The spring holds the cord away from the hot iron and saves it from kinking and wearing out next to the handle.

7. Extension socket. Screw it into a lamp socket and it brings the lamp up or out about one inch further. Useful in some table lamps or in some reflectors where the neck of the lamp is too short.

The Cost of Fire

Serious fires in any community tend to increase or hold up insurance rates. Thus the cost of fire goes into every family budget.

ON THE AIR

Conducted by
JEROME J. HENRY

Gains New Fan

JOSEF MARAIS, who conducts an NBC program, Songs of the South African Veld, saved a motorist from getting a ticket for speeding and thereby gained a new fan.

The incident was revealed in a letter received by the network's information department signed, "Just a Cop."

The letter read, "Last Friday night I saw a motorist going a little too fast for my liking, so I ordered him to the curb. He asked if he could have his ticket in a hurry, as he was anxious to get home and hear a radio program called 'Josef Marais' Bushveld Songs.'

"Well, I've heard a million alibis, but this one was so original I let him go, and I tune in on the show now."

News analyst Linton Wells finds CBS microphone duties sure-fire antidote for the travel bug. His news hunts have taken him twelve times around the world. Now his globe-girdling is confined to studio walls. With his wide background as a foreign correspondent, Wells strikes through to the core in sifting reports coming in from across the seas.

• • •

Quiz Kids Will Play

QUIZ KIDS, a new radio program, made its debut over NBC stations a short while ago. The program is designed to emphasize the merits of the American school system. Each week five boys and girls up to 15 years of age will partici-

BUT REMEMBER THIS . . .

That, however slightly you value mere comfort, it has been conclusively proved that an abundance of running water markedly increases the yields of both crops and livestock—that running water in the home costs but three pennies a day, and that on many a farm, installation of a GOULDS CID Water System has more than paid for itself in actual farm-earned dollars and cents.

The choice *is* yours, but couldn't your choice be a wiser one if you had all the facts at your disposal? Bulletins on GOULDS CID Water Systems—yours for the asking—will give you those facts.

GOULDS

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Please send me the name of the nearest Goulds Distributor. I am interested in a pump for deep well ☐, shallow well service. ☐

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The newly designed *modern* line of DAYTON Pumps assures adequate, satisfactory water service. Dayton Automatic Capacity Control automatically steps up capacity from 250 to 310 gals. per hour as needed. Low first cost, low upkeep. Easy payments. Write —

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BLIZZARD Operates Easily, Economically, Efficiently with 5 H.P. Electric Motor

The Blizzard Ensilage Cutter and Hay Chopper operates with ease and amazing satisfaction with electric power. At Michigan State College 4 silos were filled with a total of 188 tons of ensilage at a total power cost of $5.34 using only a 5 h.p. motor.

Many farmers have found that the Blizzard and electric power make an ideal, profitable combination. Get free catalog at your dealer's or write us direct.

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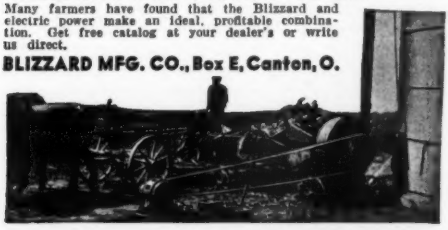

Monarch ELECTRIC and COAL-WOOD COMBINATION RANGES

Built to provide year 'round convenience and comfort in the farm kitchen. See your Monarch retail outlet or write us for booklet illustrating 5 different models.

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1240 Lake St., Beaver Dam, Wisconsin

pate. They will be selected on the basis of high intelligence ratings gained through examinations and personal interviews.

On each program a prominent educator will discuss his or her experiences with the participating children, all of whom will come from Chicago and vicinity.

With Joe Kelly asking the questions, the five participants will score points for correct answers. The three contestants having the highest scores are awarded cash prizes of $100 each and will be held over for a following program. Other participants receive $50. A participant may continue on each program of the series provided he or she places among the first three on each broadcast.

• • •

Studio Chatter

YVETTE, sensational radio singer, nears the top of one of the most rapid climbs to fame ever achieved in radio. She is making appearances on sponsored broadcasts after only five months of experience as a singer. . . . Lou Breese's arrangement of the old English folk song, "Come to the Fair," has made a decided hit with New York World's Fair executives. A recording has been made to send

Listeners are quick to demand return engagements whenever they enjoy an actress' performance, which is why Vivien Smolen, above, is one of the stars frequently called to perform on CBS stations.

around the country to lure more visitors to the fair. . . . Larry Clinton's engagement at the fair has drawn such an amazing response that the idea of featuring recording artists has been adopted as a weekly feature. Various artists will appear at the RCA fair exhibit once each week.

IT is an exhausting task to climb the stairs 500 feet to the top of the Washington Monument; but the man of average weight would have to climb it 35 times to do as much work as is done by one kilowatt-hour of electricity.

C. M. Ripley, General Electric Co.

Electricity Helped Me Earn This Money

Irrigation Paid $500

"Without an electric pump which operates the irrigation system we could not have won eleven ribbons and sweepstakes on dahlias and chrysanthemums at the Exchange Club Fair last fall; nor could we have paid the cook, and cost of all our groceries during the year—approximately five hundred dollars."

DANIEL MCKIE, Meriwether, S. C.

Lights Bright for Night Baseball

The average intensity of illumination in the infield of Forbes Field in Pittsburgh is 200 foot candles. (The brightest lighted spot under a lamp in your home is probably less than 20 foot candles). The outfield has 140 foot candles. 864 floodlights of 1500 watts each are mounted on eight steel towers with a maximum height of 150 feet. Three 500 kva transformers (equivalent to 2,000 hp) are located in the ball park to supply the 1,296,000 watts in lamps. The lamps are operated on a voltage which is 10 per cent. higher than that for which they were designed. This causes the lamps to burn out more quickly but they produce 35 per cent. more light at a 16 per cent. increase in power consumption.

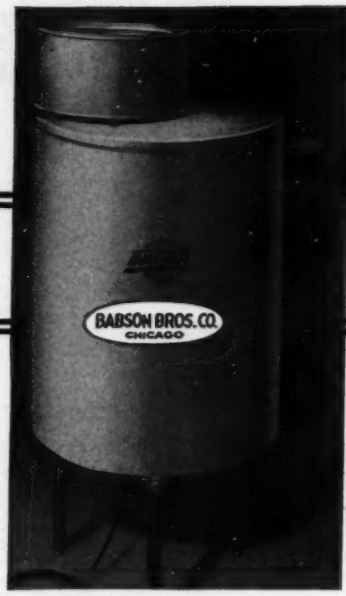
Forbes Field is the eighth major league ball park which has been equipped with lights for night games.

Milker Saves One Man

Electric milkers save one man's labor and have reduced time devoted to milking a 152-cow herd by twenty per cent, according to Louis Rohrer, well-known Chino (Calif.) dairyman. He has been using four milking units for a period of

over a year at his modern dairy farm, and says he has found them more convenient than old-fashioned methods. They also aid in keeping bacteria count low, Mr. Rohrer states.—MARY SHOOP.

A Harvard botanist says: "It is always better to plant a 50-cent tree in a three-dollar hole than a three-dollar tree in a 50-cent hole."



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Thanks to the

DAIRY MAID Electric Water Heater

Here—at last!—is a portable electric water heater that uses slow heating—plus heavy insulation—to give you a constant and abundant supply of hot water for your dairy, or anywhere else, **at a lower operating cost than you ever dreamed possible.** You can have hot water from 140 degrees up to 180; and by automatic regulation the current is used **only** when it is needed to maintain sufficient heat. That saves you **dollars!** No wonder the Dairy-Maid tops 'em all in convenience and economy. FREE DEMONSTRATION! Mail the coupon for full particulars!

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2843 West 19th St., Dept. C-551, Chicago

Mail This Coupon Now!

BABSON BROS. CO., 2843 W. 19th St., Dept. C-551, Chicago

Please send me, without obligation, full particulars about the money-saving Dairy-Maid Heater, together with your EASY TERMS.

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Town.....

R. F. D......**State**.....

Names and addresses of manufacturers of the articles described in this column will gladly be furnished upon request to What's New Department, ELECTRICITY ON THE FARM, *24 West 40th Street, New York, N. Y.*

10" Bench Lathe

For the well equipped farm shop here is a new bench lathe of interest. It has a 10-inch swing,

1-inch collet capacity and bed lengths of 3 feet to 4½ feet. Mounted on a welded steel bench, it is a precision tool for small work. Twelve speeds, motor driven from below. Prices $688 up.

Rectifier for Grain Moisture Tester

The U. S. Department of Agriculture announces the invention by Alfred Christie of the Agricultural Marketing Service of a radio-tube rectifier to replace batteries on electric grain moisture testers. The rectifier requires no transformers or auxiliary parts and may be used on either direct or alternating current. The Secretary of Agriculture will license the manufacture of the device without royalties.

New Publications

SUCCESSFUL PARTIES. By Louise Price Bell (a contributor to ELECTRICITY ON THE FARM). 215 pp. Price $1.50. Fleming H. Revell Co., N. Y. 42 chapters on parties; breakfast, dinner and supper parties; birthdays, anniversaries, showers; garden parties, children's parties, hobby shows. Out of the ordinary, inexpensive ways to entertain.

CONCRETE FIRE CISTERNS. Plans for 3,000 to 40,000 gal. sizes. 6 pp. illus. MILK HOUSES; COOLING TANKS; DAIRY BARN FLOOR. 8 pp. illus. Forms, plans, etc. Portland Cement Association, 33 W. Grand Ave., Chicago.

PORTABLE ELECTRIC SAW HANDBOOK. History of saws; factors in electric saw design; hand and table use of portable electric saws for many operations; operating data. 24 pp. Many illus. Black & Decker Mfg. Co., Towson, Md. Free.

Loss of Life

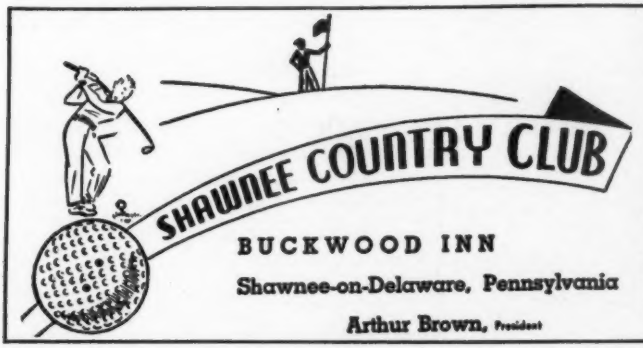
Statistics show that 3,500 persons lose their lives in farm fires each year. This is more of a tragedy than the property loss, and is a fact which should prompt every farm family to adopt all possible measures of precaution against the outbreak of fire in any farm building.

CLASSIFIED ADVERTISING

LYON BROODERS ARE USED AT THE ELECTRIFIED FARM—LYON FLY ELECTROCUTORS kill disease-carrying pests the easiest way; killing thousands daily for a cent or two. Fireproof and waterproof. Built by the Pioneers of Electric Brooding. Send for FREE CATALOG also describing money-saving BROODERS, Alarms, Supplies for home-made equipment. LYON RURAL ELECTRIC CO., Dept. EF, Greensboro, N. C., or San Diego, California.

GET YOUR FREE COPY NOW. Bussey 100-page book for Poultrymen. Low Factory Prices. Parts for electric brooders and batteries; heating assemblies; wire Fabrics; Poultry Department. Save money. BUSSEY PEN PRODUCTS CO., 5151 West 65th St., Chicago.

POULTRY TIME SWITCHES pay for themselves in increased egg production. Five models from $3.95 to $18. All-electric or manually wound. With or without dimmer circuit. Write for information. AUTOMATIC ELECTRIC MANUFACTURING CO., Mankato, Minnesota.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BUCKWOOD INN
Shawnee-on-Delaware, Pennsylvania
Arthur Brown, President
A summer country home, with a championship golf course! In the Poconos, only 85 miles from New York or Philadelphia, on the Delaware River near Delaware Water Gap.
Shawnee Country Club, scene of the annual Shawnee Open and the 1938 P.G.A. Championship. Sam Snead, Professional.
Right at the first tee, with golf privileges for guests, BUCKWOOD INN, modern concrete and hollow tile American Plan inn featuring the utmost in cuisine and comfort.
Swimming in a Hollywood pool overlooking the Delaware River; tennis, fishing, riding, etc. Exclusive clientele; rates and reservations, address: ARTHUR BROWN, President. Buckwood Inn, Shawnee-on-Delaware, Pa.